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ABSTRACT

Prepared by secondary teachers from ideas suggested by an advisory committee of teachers, this compilation of learning activities is designed for use by mathematics instructors to supplement the curriculum resource handbook, "Learning Laboratories for Unemployed, Out-of-School Youth" (ED 047 273). The 34 activities, which are intended to orient the disadvantaged student to the world of work, emphasize such topics as basic mathematical combinations, multiplication, division, budgeting, banking terms, using a checking account, and credit. Each activity contains these components: (1) reference to the computation skills section of the curriculum resource handbook, (2) objective, (3) teaching procedure, (4) evaluation suggestions, and (5) student worksheets which may be duplicated and/or used for transparencies. An introductory section provides further suggestions to the teacher, including the recommendation that learning activities be organized in short, achievable units which can be gradually increased when the students' attention span, interest, and work habits improve. A related publication is available as VT 015 446 in this issue. (SB)

ED 063479

LEARNING LABORATORIES

or unemployed, out-of-school youth

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Computation Skills

(with extensive consumer applications)

VT 015 447

The University of the State of New York • The State Education Department
Bureau of Continuing Education Curriculum Development • Albany • New York • 12224
1972

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FOREWORD

Since their distribution in 1970, the publication entitled *Learning Laboratories For Unemployed, Out-Of-School Youth* and the accompanying sound filmstrip, *Odds On Tomorrow*, have proven to be extremely valuable resources for instructors in various adult education programs. Their wide use has generated a need for supplementary, student-oriented materials which could be used to extend or reinforce the skills, concepts, and understandings which the program seeks to develop. In response to this need, an advisory committee of teachers, representing a cross section of disciplines, was asked to contribute ideas for augmenting the teaching strategies outlined in the handbook and illustrated in the filmstrip. This committee was chaired by William B. Hemmer, formerly associate in the Bureau of Continuing Education Curriculum Development, presently assistant professor, State University College at Brockport.

Using this initial input, Jacqueline L. Kane, Gaskill Junior High, Niagara Falls; R. Allan Sholtes, Guilderland Central Schools; and Virginia A. Rovelli, Ballston Spa Public Schools developed a series of learning activities and ancillary learning exercises which reflect the persistent life problems facing the average unemployed, out-of-school youth. Fredric Paul, associate, Bureau of Mathematics Education reviewed the manuscript and and made a number of pertinent suggestions.

The final writing and the preparation of the manuscript for publication was completed under the direction of George K. Tregaskis, associate, Bureau of Continuing Education Curriculum Development.

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HERBERT BOTHAMLEY, *Chief*
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USE OF MATERIALS IN THIS PUBLICATION

The intent of this publication is to suggest learning activities which would supplement those found in the curriculum resource handbook *Learning Laboratories for Unemployed, Out-of-School Youth.* This particular compilation of learning activities is designed for use by the mathematics instructor. Some of the activities refer directly to lessons suggested in the Curriculum for Computation Skills sections of the curriculum resource handbook. Many of the activities involve a combination of skills and reference to the handbook is made merely for the sake of convenience.

The content of this phase of the program must be kept extremely practical. All the activities should be relevant to the experiences and aspirations of the students. The instructor must realize that what appeals to him or even students from other environments may be quite different from what is of immediate interest to the disadvantaged student.

The program should be oriented to the world of work since the disadvantaged pupil is job-conscious and interested in gaining economic stability as expediently as possible. All text materials must fit the reading levels, interests, special backgrounds, and vocabulary of the students.

Learning activities should be organized in short, achievable units. This brevity facilitates mastery and a sense of accomplishment for the students. The length of the lesson should be increased gradually only as the students' attention span, interest, and work habits improve. The curriculum must have elements of success built into it. Encouragement from the instructor, peer approval, community support and recognition, combined with experiences in problem solving will help the students acquire positive self-images.

Single copies of worksheets to be used by the students are provided. These worksheets may be duplicated for classroom distribution by first making a thermal master of them or simply by xeroxing. In addition, they are suitable for thermal copying as a means of making overhead projector transparencies.

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LEARNING ACTIVITY 1: READING AND WRITING NUMERALS AND WORDS

Reference: Curriculum Resource Handbook, p. 61

OBJECTIVE

To be able to read and to write the basic number units listed in Learning Exercise 1

TECHNIQUE

This lesson is intended to reinforce the necessary associations between basic numerals and the words used to represent them. As such it is a reading and writing lesson and not a math lesson dealing with place value. Therefore, the instructor should not attempt, during this lesson, to have the students write or read, in either numerals or words, combinations of the basic units which would require a knowledge of place value; e.g. 21, one hundred six.

Explain and demonstrate how handling checks and a checking account requires the ability to both read and write in numerals and words. Distribute copies of Learning Exercise 1 and review the words with the students emphasizing the correct pronunciation of each. Draw their attention to the correct spelling of *four* and *forty* as these words are often misspelled. Ask each student to construct for himself a set of 3x5 flash cards. On one side of each card he should write one of the numerals from the list and on the other side he should print the word for the numeral. These can be used for individual or small-group practice until each is recognized at sight.

EVALUATION

Use three tests. In the first, say the word and have the students write the numeral; in the second, write the numeral and have the students respond with the word (written). Check accuracy of spelling. In the third, supply the word (written) and have the student pronounce the word. The first 2 tests may be administered to a group; the last test must be administered to individuals.

Observe student use of the reference sheet as they are reading or writing material containing these words and encounter difficulty. When they encounter a word they cannot read or spell, do they ask for assistance or do they refer to their reference sheet?

NOTES

LEARNING EXERCISE 1

NUMBER WORDS

0	zero	16	sixteen
1	one	17	seventeen
2	two	18	eighteen
3	three	19	nineteen
4	four	20	twenty
5	five	30	thirty
6	six	40	forty
7	seven	50	fifty
8	eight	60	sixty
9	nine	70	seventy
10	ten	80	eighty
11	eleven	90	ninety
12	twelve	100	one hundred
13	thirteen	1,000	one thousand
14	fourteen	1,000,000	one million
15	fifteen	1,000,000,000	one billion

LEARNING ACTIVITY 2: PLACE VALUE

Reference: Curriculum Resource Handbook, p. 60

OBJECTIVE

To provide additional diagnosis and practice with respect to place value

TECHNIQUE

Review the values of the places one to hundred million. Have the students complete problem I of Learning Exercise 2 as a class activity. Do one step at a time, demonstrating the correct placement of each numeral. Use an overhead projector or chalkboard.

Ask the students to complete problem II independently.

Use this exercise to remind the students of the need to use zero as a place holder in order that the value of the number can be expressed for reading. For example, have the students look at the first example in problem II.

Ask them to write this number. Check their answers for use of zero. If they wrote "two hundred fifty six," have them compute the value such as:

6 in tens place	= 6 x 10	=	60
2 in thousands place	= 2 x 1000	=	2000
5 in hundreds place	= 5 x 100	=	500
			2560

Ask: "Is 2560 the same as 256?" The students should realize that they are not the same and the value of zero can be reinforced.

EVALUATION

Determine if the students have written each of the numbers properly and if they are able to read the numbers correctly.

NOTES

LEARNING EXERCISE 2

PLACE VALUE

I. **DIRECTIONS:** Using the spaces below:

Place a 9 in hundreds place

Place a 7 in ten thousands place

Place a 4 in ones place

Place a 6 in one millions place

Place an 8 in hundred millions place

Place a 5 in tens place

Place a 3 in one thousands place

Place a 0 in hundred thousands place

Place a 1 in ten millions place

____ ____ ____, ____ ____ ____, ____ ____ ____

Can you read the number you have just written?

II. **DIRECTIONS:** Put the numbers in the correct place. Eacn blank represents one place in our number system. Do not forget to use zeros as place holders where necessary.

a. ____ ____, ____ ____ ____

6 in tens place
2 in thousands place
5 in hundreds place

b. ____ ____, ____ ____ ____

9 in ten thousands place
1 in ones place
8 in hundreds place

c. ____ ____ ____, ____ ____ ____, ____ ____ ____

3 in hundred thousands place
6 in ten millions place
8 in ones place
4 in one millions place

LEARNING ACTIVITY 3: INTERPRETING MATHEMATICAL SYMBOLS

Reference: Curriculum Resource Handbook, p. 61

OBJECTIVE

To interpret symbols frequently used with numbers or numerical expressions

TECHNIQUE

Display numerical symbols, including those on Learning Exercise 3 on the overhead projector, a bulletin board, or a chart. Ask students to match those which they recognize. If some are not identified, their use in context may provide a clue to their meaning. (Example: if a.m. and p.m. are not known, the teacher may say "I got up this morning at 7 a.m.")

Ads in magazines or newspapers can also be displayed to illustrate the use of symbols and numerical expressions.

Have students complete Learning Exercise 3 on their own. After each student completes his sheet, have him correct his own paper by comparing it to an answer key.

EVALUATION

The same or a similar exercise can be given a few days later to check the students' retention of these symbols.

NOTES

LEARNING EXERCISE 3

SYMBOLS AND NUMERICAL EXPRESSIONS

DIRECTIONS: In column A is a list of mathematical terms. Column B is a list of mathematical symbols which are used to represent these terms. Look at the first term in column A; it is "equals." Which symbol in column B represents this term? = is the correct answer. Write this symbol in the blank space in front of "equals." Match the remaining terms in column A with their symbols in column B.

COLUMN A	COLUMN B
_____ EQUALS	X
_____ DOES NOT EQUAL	"
_____ PLUS	¢
_____ MINUS	≠
_____ TIMES	÷
_____ DIVIDED BY	<
_____ BEFORE NOON	=
_____ AFTER NOON	$
_____ DOLLARS	-
_____ CENTS	p.m.
_____ PERCENT	°
_____ DEGREE	+
_____ IS GREATER THAN	>
_____ IS LESS THAN	%
_____ INCHES	'
_____ FEET	a.m.

LEARNING ACTIVITY 4: BASIC MATHEMATICAL COMBINATIONS

Reference: Curriculum Resource Handbook, p. 61

OBJECTIVE

To diagnose basic combinations used in addition, subtraction, multiplication, and division which have not been mastered by the student

TECHNIQUE

The four tests, Learning Exercises 4, 4a, 4b, and 4c, can be administered as individual or group tests. Two minutes should be allowed for each test. Be sure students understand that the purpose of the test is to help identify facts which need further study. Point out that they should do as many examples as possible, although they may not be able to do all of them.

EVALUATION

Check tests and review the results with the students to show them what facts they must study.

Repeat the test periodically to test for mastery. This does not have to be done as a class activity; instead, have students take turns timing each other. A master answer key should be available for them to use in checking their own papers.

NOTES

LEARNING EXERCISE 4

BASIC MATHEMATICAL COMBINATIONS (ADDITION)

DIRECTIONS: Find the sums of the following:

5 5	3 6	7 9	4 7	4 4	7 7	8 2	6 3	9 7	7 8	9 3
5 8	6 4	2 2	4 2	4 9	1 6	7 1	2 3	8 4	4 1	7 2
3 1	3 9	1 9	6 2	6 9	2 8	5 4	5 6	4 8	8 8	4 5
3 3	6 7	2 6	2 7	6 5	6 8	8 3	7 3	5 9	3 2	9 4
9 2	1 5	9 6	3 4	7 4	5 7	3 5	9 8	8 6	4 3	8 7
3 7	2 9	7 5	2 4	6 6	2 5	9 5	5 2	4 6	7 6	8 5
9 9	8 9	3 8	5 3	1 1	1 2					

LEARNING EXERCISE 4a

BASIC MATHEMATICAL COMBINATIONS (SUBTRACTION)

DIRECTIONS: Find the differences of the following:

8	15	7	11	7	8	15	13	11	9	9
4	8	1	2	6	1	7	5	9	3	6
5	18	12	11	9	4	10	8	16	13	7
4	9	5	4	8	2	1	7	7	8	2
8	13	5	17	6	14	12	12	4	10	12
3	6	2	9	6	5	4	7	4	7	6
9	11	6	9	8	10	17	11	10	6	6
2	3	3	1	8	3	8	7	8	4	5
7	14	10	13	14	7	7	15	13	3	11
4	8	6	7	7	5	3	6	4	2	6
13	8	16	10	14	10	9	10	16	6	11
9	2	8	5	9	4	5	9	9	2	8
9	11	4	15	8	12	8	14	12	4	12
7	5	1	9	6	8	5	5	3	3	9
9	5	10								
4	3	2								

LEARNING EXERCISE 4b

BASIC MATHEMATICAL COMBINATIONS (MULTIPLICATION)

DIRECTIONS: Find the products of the following:

5 × 3	6 × 9	2 × 2	7 × 2	8 × 8	5 × 1	3 × 7	5 × 9	6 × 5	6 × 6	6 × 3
3 × 7	4 × 8	9 × 8	2 × 3	8 × 9	4 × 3	4 × 6	2 × 5	9 × 6	7 × 7	8 × 3
3 × 3	2 × 4	7 × 9	4 × 2	4 × 9	3 × 9	8 × 7	9 × 9	1 × 6	2 × 6	4 × 1
4 × 4	3 × 4	7 × 6	4 × 7	2 × 9	5 × 4	7 × 3	7 × 8	8 × 2	2 × 4	8 × 4
7 × 4	9 × 2	2 × 8	6 × 8	9 × 1	5 × 2	3 × 8	9 × 3	5 × 8	5 × 5	8 × 5
9 × 5	6 × 2	1 × 3	6 × 2	3 × 4	4 × 5	1 × 7	9 × 5	3 × 6	6 × 7	9 × 7
8 × 6	5 × 7	7 × 5	5 × 5							

LEARNING EXERCISE 4c

BASIC MATHEMATICAL COMBINATIONS
(DIVISION)

DIRECTIONS: Find the quotients of the following:

$5\overline{)30}$	$8\overline{)24}$	$2\overline{)12}$	$8\overline{)48}$	$2\overline{)10}$	$8\overline{)16}$	$9\overline{)54}$	$9\overline{)81}$
$7\overline{)35}$	$9\overline{)27}$	$4\overline{)16}$	$3\overline{)24}$	$6\overline{)30}$	$4\overline{)8}$	$8\overline{)72}$	$5\overline{)35}$
$1\overline{)5}$	$9\overline{)72}$	$5\overline{)10}$	$5\overline{)20}$	$9\overline{)18}$	$8\overline{)40}$	$6\overline{)18}$	$4\overline{)32}$
$6\overline{)12}$	$7\overline{)7}$	$7\overline{)42}$	$3\overline{)21}$	$6\overline{)18}$	$3\overline{)12}$	$7\overline{)28}$	$2\overline{)6}$
$3\overline{)3}$	$7\overline{)21}$	$7\overline{)56}$	$4\overline{)12}$	$3\overline{)9}$	$9\overline{)9}$	$8\overline{)32}$	$7\overline{)49}$
$4\overline{)24}$	$6\overline{)6}$	$2\overline{)18}$	$9\overline{)36}$	$6\overline{)24}$	$2\overline{)4}$	$8\overline{)64}$	$5\overline{)15}$
$2\overline{)16}$	$6\overline{)54}$	$4\overline{)20}$	$3\overline{)27}$	$6\overline{)42}$	$2\overline{)6}$	$1\overline{)9}$	$5\overline{)5}$
$4\overline{)28}$	$3\overline{)18}$	$1\overline{)8}$	$2\overline{)14}$	$7\overline{)63}$	$2\overline{)8}$	$9\overline{)45}$	$8\overline{)56}$
$5\overline{)40}$	$4\overline{)36}$	$9\overline{)63}$	$5\overline{)25}$	$7\overline{)14}$	$3\overline{)15}$	$6\overline{)36}$	

LEARNING ACTIVITY 5: ADDITION OF WHOLE NUMBERS (WITHOUT CARRYING)

Reference: Curriculum Resource Handbook, p. 61

OBJECTIVE

To provide practice in addition of whole numbers which does not require carrying and to introduce a method of checking that addition

TECHNIQUE

Have the students complete Learning Exercise 5.

Before correcting it, show the students how to check their work by adding the numbers in a different direction than they originally did. This is an informal method of illustrating the commutative principle of addition. As stated in the curriculum handbook, it is not necessary for the students to know the term *commutative*, but they should realize what it allows them to do. Give them time to apply this principle when checking the examples in the exercise before correcting it for accuracy.

EVALUATION

The students should be able to do at least 80% of the examples correctly. Provide additional learning exercises of a similar nature for students scoring less than 80%. Assign top students as tutors to those having difficulties.

Determine if students are able to apply the skill to solving word problems of a practical nature. Example: "Michael has $2.10, Pete $5.50, Jake $.25 and Ralph $4.02. How much do they have all together?"

NOTES

LEARNING EXERCISE 5

ADDITION OF WHOLE NUMBERS (WITHOUT CARRYING)

DIRECTIONS: Find the sums of the following:

a.
$$\begin{array}{r} 6 \\ 1 \\ +\ 2 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 4 \\ 0 \\ +\ 3 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 2 \\ 3 \\ +\ 4 \\ \hline \end{array}$$

d.
$$\begin{array}{r} 21 \\ +\ 36 \\ \hline \end{array}$$

e.
$$\begin{array}{r} 52 \\ +\ 47 \\ \hline \end{array}$$

f.
$$\begin{array}{r} 846 \\ +\ 153 \\ \hline \end{array}$$

g.
$$\begin{array}{r} 34 \\ 21 \\ +\ 43 \\ \hline \end{array}$$

h.
$$\begin{array}{r} 563 \\ 24 \\ +\ 301 \\ \hline \end{array}$$

i.
$$\begin{array}{r} 276 \\ 403 \\ +\ 210 \\ \hline \end{array}$$

j.
$$\begin{array}{r} 103 \\ 461 \\ 310 \\ +\ 124 \\ \hline \end{array}$$

k.
$$\begin{array}{r} 206 \\ 62 \\ 600 \\ +\ 21 \\ \hline \end{array}$$

l.
$$\begin{array}{r} 510 \\ 116 \\ 201 \\ +\ 100 \\ \hline \end{array}$$

LEARNING ACTIVITY 6: ADDITION OF WHOLE NUMBERS (CARRYING ONCE AND CARRYING MORE THAN ONCE)

Reference: Curriculum Resource Handbook, pp. 61, 62

OBJECTIVES

- To provide practice in addition of whole numbers which involves carrying once

- To provide practice in addition of whole numbers which involves carrying more than once

TECHNIQUE

Have students complete Learning Exercise 6. If they do not understand *carrying* or *regrouping*, it may have to be demonstrated by finding the sum of several groups of objects such as coins or pencils.

EVALUATION

The student should be able to do at least 80% of the examples correctly. Provide additional learning exercises of a similar nature for students scoring less than 80%. Assign top students as tutors to those having difficulties.

Determine if the students are able to apply the skill to solving word problems of a practical nature. Example: "A boxer has won 18 bouts on decisions, 6 on knockouts, and he has lost 9. What is the total number of professional fights for this boxer?"

LEARNING ACTIVITY 7: HORIZONTAL ADDITION

Reference: Curriculum Resource Handbook, p. 61

OBJECTIVE

To provide practice in finding sums for addition problems presented horizontally

TECHNIQUE

Have students work five or six examples in Learning Exercise 7. Determine if the students, in transferring the horizontal series of numbers to columns, are alining the numbers correctly. It may be necessary to review the importance of place value.

EVALUATION

Students should be able to do at least 80% of the examples correctly. Provide additional learning exercises of a similar nature for students scoring less than 80%. Assign top students as tutors to those having difficulties.

LEARNING EXERCISE 6

ADDITION OF WHOLE NUMBERS (CARRYING ONCE AND CARRYING MORE THAN ONCE)

DIRECTIONS: Find the sums of the following:

Carrying Once

a. 36 + 47	b. 18 + 52	c. 64 + 28
d. 307 + 589	e. 261 + 453	f. 806 + 104
g. 43 27 + 19	h. 35 18 + 46	i. 436 249 + 205

Carrying More Than Once

a. 261 + 478	b. 597 + 463	c. 806 + 427
d. 486 294 + 307	e. 307 625 + 843	f. 893 275 + 647
g. 999 888 + 777	h. 3647 493 + 2406	i. 4602 1957 + 2486

LEARNING EXERCISE 7

HORIZONTAL ADDITION

DIRECTIONS: Find the sums of the following:

a. 77 + 79 + 45 + 24

b. 7039 + 9762 + 4897

c. 486 + 398 + 769 + 994

d. 9896 + 84 + 406

e. 142 + 390 + 274 + 193

f. 24 + 6629 + 189

g. 530 + 89 + 664 + 52

h. 8705 + 486 + 3590

i. 832 + 409 + 26 + 517

j. 46 + 883 + 109

LEARNING ACTIVITY 8: SUBTRACTION OF WHOLE NUMBERS WITHOUT REGROUPING; CHECKING SUBTRACTION

Reference: Curriculum Resource Handbook, p. 62

OBJECTIVE

To provide practice involving subtraction of whole numbers without regrouping, and to introduce the method of checking subtraction

TECHNIQUE

Have students complete Learning Exercise 8. Before correcting the exercise, develop the method of checking subtraction using addition.

After the student has had a chance to go back and check Learning Exercise 8, correct it.

EVALUATION

The student should be able to do at least 80% of the examples correctly. Provide additional exercises of a similar nature for students scoring less than 80%. Assign top students as tutors to those having difficulties.

Determine if the students are able to apply the skill to solving word problems of a practical nature. Example: "Pedro has $7.65. He pays for a shirt that costs $5.25. How much money does Pedro have left?"

NOTES

LEARNING EXERCISE 8

SUBTRACTION OF WHOLE NUMBERS WITHOUT REGROUPING; CHECKING SUBTRACTION

DIRECTIONS: Find the differences in the following problems. Check your work by addition.

a. $\begin{array}{r} 46 \\ -\ 23 \\ \hline \end{array}$

b. $\begin{array}{r} 95 \\ -\ 64 \\ \hline \end{array}$

c. $\begin{array}{r} 74 \\ -\ 24 \\ \hline \end{array}$

d. $\begin{array}{r} 36 \\ -\ 12 \\ \hline \end{array}$

e. $\begin{array}{r} 873 \\ -\ 242 \\ \hline \end{array}$

f. $\begin{array}{r} 604 \\ -\ 302 \\ \hline \end{array}$

g. $\begin{array}{r} 591 \\ -\ 471 \\ \hline \end{array}$

h. $\begin{array}{r} 1736 \\ -\ 423 \\ \hline \end{array}$

i. $\begin{array}{r} 9007 \\ -\ 2006 \\ \hline \end{array}$

j. $\begin{array}{r} 6789 \\ -\ 5432 \\ \hline \end{array}$

LEARNING ACTIVITY 9: SUBTRACTION OF WHOLE NUMBERS (SINGLE AND DOUBLE REGROUPING - NO ZEROS)

Reference: Curriculum Resource Handbook, p. 62

OBJECTIVE

To provide practice in subtraction of whole numbers involving single regrouping with no zero in the minuend

TECHNIQUE

Demonstrate the necessity for regrouping in subtraction by working through, with the students, the first problem in Learning Exercise 9. Ascertain that the students understand why 5 cannot be subtracted from 3; that 43 is equal to 4 tens and 3 ones; and that 43 may be regrouped to 3 tens and 13 ones. It may be necessary to provide additional practice with simple regrouping problems such as 69 = 5 tens and ___ ones; 72 = ___ tens and 12 ones; 540 = 4 hundreds, ___ tens, and 0 ones, etc.

Have the student complete Learning Exercise 9.

EVALUATION

The student should be able to do at least 80% of the examples correctly. Provide additional exercises of a similar nature for students scoring less than 80%. Assign top students as tutors to those having difficulties.

Determine if the students are able to apply the skill to solving word problems of a practical nature. Example: "Joe pays for a $3.98 belt out of a check that he cashed for $24.25. How much change should he receive?"

LEARNING ACTIVITY 10: SUBTRACTION OF WHOLE NUMBERS (REGROUPING, DOUBLE REGROUPING, AND ZEROS)

Reference: Curriculum Resource Handbook, p. 62

OBJECTIVE

To provide practice in subtraction of whole numbers involving regrouping, double regrouping, and zeros

TECHNIQUE

Follow the same techniques outlined for Learning Activity 9, using problem b in Learning Exercise 10 for demonstration purposes. Ascertain that the students understand 809 may be regrouped to equal 7 hundreds, 10 tens, and 9 ones. It may be necessary to provide additional practice with similar regrouping problems. Note that double regrouping (i.e. 500 = 4 hundreds, 10 tens and 0 ones = 4 hundreds, 9 tens, 10 ones) may need to be reviewed.

EVALUATION

The student should be able to do at least 80% of the examples correctly. Provide additional exercises of a similar nature for students scoring less than 80%. Assign top students as tutors to those having difficulties.

Determine if the students are able to apply the skill to solving word problems of a practical nature. Example: "Fernandez is planning to take a trip to a city 500 miles away. He can get a ride with a friend for 398 miles and he plans to take a bus the rest of the way. For how many miles will he be riding the bus?"

NOTES

LEARNING EXERCISE 9

SUBTRACTION OF WHOLE NUMBERS (SINGLE AND DOUBLE REGROUPING- NO ZEROS)

DIRECTIONS: Find the differences in the following:

Single Regrouping

a. 843 − 625

b. 936 − 217

c. 641 − 239

d. 836 − 592

e. 4712 − 2661

f. 5628 − 2345

Double Regrouping

a. 423 − 157

b. 965 − 386

c. 356 − 278

d. 514 − 395

e. 642 − 378

f. 238 − 199

LEARNING EXERCISE 10

SUBTRACTION OF WHOLE NUMBERS (REGROUPING, DOUBLE REGROUPING, AND ZEROS)

DIRECTIONS: Find the differences in the following:

a. 732 − 206

b. 809 − 267

c. 500 − 328

d. 643 − 570

e. 830 − 462

f. 706 − 390

g. 547 − 104

h. 900 − 899

i. 352 − 200

j. 6000 − 4982

LEARNING ACTIVITY 11: HORIZONTAL SUBTRACTION

OBJECTIVE

To provide practice in solving subtraction problems presented horizontally

TECHNIQUE

Have the students complete Learning Exercise 11. Determine if the students, in transferring the horizontal series of numbers to columns, are alining the numbers correctly. It may be necessary to review the importance of place value.

EVALUATION

The student should be able to do at least 80% of the examples correctly. Provide additional exercises of a similar nature for students scoring less than 80%. Assign top students as tutors to those having difficulties.

NOTES

LEARNING ACTIVITY 12: ADDITION AND SUBTRACTION OF WHOLE NUMBERS - REVIEW

Reference: Curriculum Resource Handbook, p. 62

OBJECTIVE

To review addition and subtraction of whole numbers

TECHNIQUE

Have students complete Learning Exercise 12.

EVALUATION

The student should be able to do at least 80% of the examples correctly. Provide additional exercises of a similar nature for students scoring less than 80%. Assign top students as tutors to those having difficulties.

NOTES

LEARNING EXERCISE 11

HORIZONTAL SUBTRACTION

DIRECTIONS: Find the differences in the following:

a. 43 - 29

b. 980 - 46

c. 75 - 28

d. 672 - 9

e. 37 - 3

f. 4602 - 2647

g. 21 - 9

h. 3197 - 763

i. 438 - 256

j. 54000 - 279

LEARNING EXERCISE 12

ADDITION AND SUBTRACTION OF WHOLE NUMBERS-REVIEW

DIRECTIONS: Do each of the following problems. Be sure to watch the signs (+ and -) to know if you should add or subtract.

a. $\begin{array}{r} 284 \\ -\ 67 \\ \hline \end{array}$

b. $\begin{array}{r} 53 \\ +\ 16 \\ \hline \end{array}$

c. $\begin{array}{r} 496 \\ -\ 263 \\ \hline \end{array}$

d. $\begin{array}{r} 67 \\ +\ 284 \\ \hline \end{array}$

e. $\begin{array}{r} 683 \\ -\ 274 \\ \hline \end{array}$

f. $\begin{array}{r} 6000 \\ -\ 2381 \\ \hline \end{array}$

g. $\begin{array}{r} 27 \\ +\ 13 \\ \hline \end{array}$

h. $\begin{array}{r} 625 \\ 130 \\ +\ 316 \\ \hline \end{array}$

i. $\begin{array}{r} 683 \\ -\ 428 \\ \hline \end{array}$

j. $\begin{array}{r} 3782 \\ 5665 \\ +\ 214 \\ \hline \end{array}$

k. $\begin{array}{r} 294 \\ 115 \\ +\ 348 \\ \hline \end{array}$

l. $\begin{array}{r} 9462 \\ -\ 2462 \\ \hline \end{array}$

m. 23 + 467 + 192

n. 5200 - 1699

o. 1065 + 354 + 287

p. 3264 + 1081 + 511 + 437

q. 467 - 345

r. 86 + 117 + 4003 + 75

s. 708 - 468

t. 8040 - 2090

LEARNING ACTIVITY 13: MULTIPLICATION

Reference: Curriculum Resource Handbook, p. 62

OBJECTIVE

To develop the understanding that multiplication is the short form of finding the value of the sum of a group of the same numbers

TECHNIQUE

Have the students complete Learning Exercise 13. Then ask them if there is a shorter or easier way to have found these same values. The expected response is that the same value could have been found by multiplying the number that is being repeated by the number of times it is repeated. For example, to find the value of 3 + 3 + 3 + 3 + 3, instead of using addition, multiply 3 by 5.

EVALUATION

Ask the students to suggest how the examples on Learning Exercise 13 could be rewritten as multiplication examples. Then have them set up the examples as multiplication problems and solve them.

Determine if the students are able to apply the concept to solving word problems of a practical nature. Example: "Nick collects $3.00 from each of his 8 customers. How much did he collect in total?"

LEARNING ACTIVITY 14: ONE-DIGIT, TWO-DIGIT, AND THREE-DIGIT MULTIPLIERS

Reference: Curriculum Resource Handbook, p. 62

OBJECTIVES

- To provide practice in multiplying by a one-digit multiplier
- To provide practice in multiplying by a two-digit multiplier
- To provide practice in multiplying by a three-digit multiplier

TECHNIQUE

Use several examples from Learning Exercise 14 to demonstrate how to maintain proper alinement of place value. If necessary, draw vertical lines and label the columns as follows:

hundreds	*tens*	*ones*
	3	6
x	2	4
	2	4
1	4	
7	2	
8	8	4

Ascertain that the students understand that in this problem they are, first, multiplying 36 by 4, and, second, multiplying 36 by 20.

Have students complete Learning Exercise 14.

EVALUATION

The student should be able to do at least 80% of the examples correctly. Provide additional exercises of a similar nature for students scoring less than 80%. Assign top students as tutors to those having difficulties.

Determine if students are able to apply the skill to solving word problems of a practical nature. Example: "How much would 25 brackets cost if each bracket is priced at $.29?"

NOTES

LEARNING EXERCISE 13

MULTIPLICATION

DIRECTIONS: Find the value of each of the following:

a. 3 + 3 + 3 + 3 + 3 =

b. 5 + 5 + 5 =

c. 2 + 2 + 2 + 2 + 2 + 2 =

d. 10 + 10 + 10 + 10 =

e. 25 + 25 + 25 + 25 + 25 =

LEARNING EXERCISE 14

ONE-DIGIT, TWO-DIGIT, AND THREE-DIGIT MULTIPLIERS

DIRECTIONS: Find the products of the following:

One-Digit Multipliers		Two-Digit Multipliers		Three-Digit Multipliers	
a. 36 x 5	b. 27 x 8	a. 36 x 24	b. 47 x 85	456 x 123	b. 327 x 265
c. 247 x 9	d. 94 x 3	c. 27 x 76	d. 326 x 52	c. 129 x 458	d. 742 x 111
e. 7561 x 6	f. 3028 x 4	e. 3026 x 64	f. 5296 x 75	e. 805 x 782	f. 598 x 167
g. 82 x 7	h. 15 x 6	g. 96 x 35	h. 75 x 41	g. 615 x 524	h. 783 x 419
i. 402 x 4	j. 628 x 5	i. 804 x 39	j. 691 x 23	i. 3031 x 462	j. 8240 x 539

LEARNING ACTIVITY 15: HORIZONTAL MULTIPLICATION

OBJECTIVE

To provide practice in solving multiplication exercises presented in a horizontal form

TECHNIQUE

Have the student complete Learning Exercise 15. Reemphasize the fact that two numbers can be multiplied in any order (commutative principle of multiplication). When evaluating 22 x 3 it is more convenient to set it up as $\begin{array}{r} 22 \\ \times 3 \\ \hline \end{array}$ rather than as $\begin{array}{r} 3 \\ \times 22 \\ \hline \end{array}$

EVALUATION

The student should be able to do at least 80% of the examples correctly. Provide additional exercises of a similar nature for students scoring less than 80%. Assign top students as tutors to those having difficulties.

LEARNING ACTIVITY 16: MULTIPLICATION BY 10, 100, AND 1000

Reference: Curriculum Resource Handbook, p. 62

OBJECTIVE

To provide practice in multiplying by 10, 100, and 1000 by simply annexing zeros.

TECHNIQUE

Without any initial direction have the students complete Learning Exercise 16. After they have completed it, ask if they think there is a shortcut for multiplying by 10, 100, and 1000. If they can describe in their own words the method of annexing zeros, have them repeat Learning Exercise 16, using the shortcut.

EVALUATION

Check Learning Exercise 16 to see if they are able to apply the shortcut. Determine if the students are able to apply the skill to solving word problems of a practical nature. Examples: "If Carlos is able to save $10.00 a week for 52 weeks, how much will he have saved?" "If Nanette earns $100.00 a month, how much will she earn in one year?"

LEARNING EXERCISE 15

HORIZONTAL MULTIPLICATION

DIRECTIONS: Find the products of the following:

a. 4 x 5 =	b. 35 x 215 =	c. 22 x 3 =
d. 908 x 26 =	e. 9 x 67 =	f. 81 x 3682 =
g. 36 x 48 =	h. 216 x 934 =	i. 27 x 53 =
j. 7052 x 346 =		

LEARNING EXERCISE 16

MULTIPLICATION BY 10, 100, AND 1000

DIRECTIONS: Complete the following:

a. 2 x 10 =	b. 2 x 100 =	c. 2 x 1000 =
d. 5 x 10 =	e. 5 x 100 =	f. 5 x 1000 =
g. 7 x 10 =	h. 7 x 100 =	i. 7 x 1000 =
j. 3 x 10 =	k. 3 x 100 =	l. 3 x 1000 =
m. 10 x 10 =	n. 10 x 100 =	o. 10 x 1000 =
p. 25 x 10 =	q. 25 x 100 =	r. 25 x 1000 =
s. 41 x 10 =	t. 41 x 100 =	u. 41 x 1000 =
v. 100 x 10 =	w. 100 x 100 =	x. 100 x 1000 =

Can you see any pattern?

LEARNING ACTIVITY 17: DIVISION

Reference: Curriculum Resource Handbook, p. 62

OBJECTIVES

- To develop an understanding of the meaning of division
- To develop a method for checking division

TECHNIQUE

Use a group of 24 moveable objects, such as pennies. Ask a student to remove a group of six objects. Then ask him to continue removing groups of 6 objects until no more can be removed.

Ask: "How many groups of 6 were you able to remove from the 24?" *(4)*

Repeat, asking him to remove groups of 3 objects.

Ask: "How many groups of 3 were you able to remove from the 24?" *(8)*

Repeat, removing groups of 2 objects.

Ask: "How many groups of 2 were in the 24?" (12)

Ask "What were you really doing each time?" The response to elicit is that the student was *dividing the whole into equal groups.*

Write these expressions on the chalkboard:

24 ÷ 6	24 ÷ 3	24 ÷ 2
6 ÷ 24	3 ÷ 24	2 ÷ 24

Ask: "Which of these statements describe what you were doing?" *(24 ÷ 6, 24 ÷ 3, 24 ÷ 2)*

Stress that the statements are read from left to right like a sentence and ÷ means *divided by.*

Ask: "Is there any other way to write twenty-four divided by six?" *(6/24)* "Twenty-four divided by three?" *(3/24)* "Twenty-four divided by two?" *(2/24);* or $(\frac{24}{6}, \frac{24}{3}, \frac{24}{2})$.

Ask: "When you see a problem like 24 ÷ 6, how do you get the answer?" The student will probably respond that he asks himself *6 times what gives me 24,* or something similar.

Ask: "Can we then use multiplication to check division?" *Yes, multiply the divisor and the quotient to get the dividend.* Note: The students may not use the terms for these numbers. Instead, they might say, *"The top number times the number outside the box gives me the number inside the box."* Accept this explanation and show them that there are terms for the numbers of a division problem.

EVALUATION

Present Learning Exercise 17 and ask the students what is to be found in each problem.

Example: $30 \div 5$ means we want to know how many groups of five are in 30.

$8\overline{)32}$ means we want to know how many groups of 8 are in 32.

Determine if the students are able to apply the skill to solving word problems of a practical nature. Example: "Four waiters agree to split evenly the $16.00 in tips that they earned in one day. How much should each receive?"

LEARNING ACTIVITY 18: ONE-DIGIT, TWO-DIGIT, AND THREE-DIGIT DIVISORS

Reference: Curriculum Resource Handbook, p. 62

OBJECTIVES

- To provide practice in division using a one digit divisor, a two digit divisor and a three digit divisor (no remainder)

- To practice the method of checking using multiplication

TECHNIQUE

Consult Section III, p. 62, of the Curriculum Resource Handbook for a description of the subtraction method of division.

Have the students complete Learning Exercise 18. Ask them to check their work by multiplication before having you check it for accuracy.

EVALUATION

The students should be able to do at least 80% of the examples correctly Provide additional exercises of a similar nature for students scoring less than 80%. Assign top students as tutors to those having difficulties.

Determine if the students are able to apply the skill to solving word problems of a practical nature. Example: "Tony's boss told him to load 308 cases of beer onto 14 trucks. He wants the same number of cases on each truck. How many cases should Tony put on each truck?"

LEARNING EXERCISE 17

DIVISION

DIRECTIONS: Explain what is to be found in each of the following:

a. $20 \div 4$	b. $8/\overline{56}$	c. $70 \div 2$	d. $7/\overline{21}$	e. $18 \div 6$
f. $5/\overline{60}$	g. $40 \div 2$	h. $4/\overline{12}$	i. $40 \div 5$	j. $7/\overline{49}$
k. $8 \div 4$	l. $3/\overline{6}$	m. $2 \div 1$	n. $4/\overline{28}$	o. $50 \div 5$
p. $9/\overline{45}$	q. $36 \div 6$	r. $3/\overline{30}$	s. $9 \div 3$	t. $5/\overline{45}$

LEARNING EXERCISE 18

ONE, TWO, AND THREE-DIGIT DIVISORS

DIRECTIONS: Find the quotients of the following problems. Check your answers by multiplication.

<u>One-Digit Divisor</u>

a. $5/\overline{755}$	b. $6/\overline{546}$	c. $8/\overline{976}$	d. $4/\overline{302}$	e. $3/\overline{639}$	f. $7/\overline{9387}$
g. $9845 \div 5$	h. $8400 \div 7$	i. $5283 \div 9$	j. Divide 8274 by 6.		

<u>Two-Digit Divisor</u>

a. $12/\overline{156}$	b. $33/\overline{693}$	c. $61/\overline{2745}$	d. $72/\overline{1584}$
e. $102 \div 17$	f. $144 \div 12$	g. $8652 \div 42$	h. $24/\overline{432}$
i. $93/\overline{2976}$	j. $938 \div 14$		

<u>Three-Digit Divisor</u>

a. $289/\overline{27744}$	b. $603/\overline{8442}$	c. $305/\overline{5795}$	d. $412/\overline{9064}$
e. $119/\overline{8114}$			

LEARNING ACTIVITY 19: DIVISION WITH REMAINDERS

Reference: Curriculum Resource Handbook, p. 62

OBJECTIVES

- To develop an understanding of division having remainders
- To extend the method of checking division to include those problems which have a remainder

TECHNIQUE

Follow the instructional procedures suggested in Learning Activity 17, but use 25 objects instead of 24. Point out that the one left over or "remaining" is a "remainder" and is written as part of the answer using either the word *remainder* or the abbreviation R. Illustrate 4 remainder 1, 8 R 1, 12 R 1.

EVALUATION

Ask students to do Learning Exercise 19 to test their ability to perform division with remainders, and check the same.

Determine if the students are able to apply the skill to solving word problems of a practical nature. Example: "If Frank saws a 32-foot board into 5-foot pieces, what will be the length of the piece he has left?"

LEARNING ACTIVITY 20: DIVISION BY 10, 100, AND 1000

Reference: Curriculum Resource Handbook, p. 62

OBJECTIVE

To provide practice in dividing by 10, 100, and 1000 by simply moving the decimal point to the left

TECHNIQUE

Without any preliminary explanation, ask the students to complete Learning Exercise 20. When they have finished and the quotients have been checked for accuracy, ask them if they noticed any pattern. They will probably say, in their own words, something to the effect that when they divided by 100, they moved the decimal point two places to the left, and when they divided by 1000, they moved it three places to the left.

To help them remember the number of places to the left to move the decimal point, point out the correspondence between the number of zeros in 10, 100, and 1000 and the number of places the decimal point moves.

Some students will not be able to remember this shortcut and should therefore continue to perform these exercises as long division.

EVALUATION

Ask the students to try Learning Exercise 20a using the shortcut. If they understand it they should be able to do at least 90% of it without an error.

Determine if the students are able to apply the skill to solving word problems of a practical nature. Example: "Nick received $26.00 for working 10 hours overtime. How much an hour did he get paid for the overtime?"

NOTES

LEARNING EXERCISE 19

DIVISION WITH REMAINDERS

DIRECTIONS: Find the quotients of each of the following and check your answers:

a. 324 ÷ 8 b. 1125 ÷ 45 c. 408 ÷ 5

d. 135 ÷ 33 e. 521 ÷ 7 f. 299 ÷ 21

g. 360 ÷ 4 h. 1000 ÷ 16 i. 443 ÷ 6

j. 5490 ÷ 61

LEARNING EXERCISE 20

DIVISION SHORTCUT

DIRECTIONS: Find the quotients of the following:

a. 250 ÷ 10 b. 5000 ÷ 10 c. 4300 ÷ 10

d. 5000 ÷ 100 e. 3400 ÷ 100 f. 5000 ÷ 1000

g. 7800 ÷ 10 h. 42000 ÷ 100 i. 7800 ÷ 100

j. 42000 ÷ 1000

LEARNING EXERCISE 20a

DIVISION SHORTCUT

DIRECTIONS: Using the "shortcut," find the quotients of the following:

a. 400 ÷ 10 b. 8000 ÷ 1000 c. 400 ÷ 100

d. 72000 ÷ 1000 e. 2300 ÷ 10 f. 4100 ÷ 10

g. 2300 ÷ 100 h. 2600 ÷ 100 i. 8000 ÷ 10

j. 450000 ÷ 1000

LEARNING ACTIVITY 21: REVIEWING DIVISION

Reference: Curriculum Resource Handbook, p. 62

OBJECTIVE

To provide practice in finding quotients in various types of division examples

TECHNIQUES

Have the students complete Learning Exercise 21. If the students were only able to master division by a two-place divisor, either have them omit those examples with a three-place divisor, or provide a similar exercise containing division examples with only one-and two-place divisors.

EVALUATION

The students should be able to do at least 80% of the examples correctly. Provide additional exercises of a similar nature for students scoring less than 80%. Assign top students as tutors to those having difficulties.

NOTES

LEARNING ACTIVITY 22: REVIEWING WHOLE NUMBERS

Reference: Curriculum Resource Handbook, pp. 60-62

OBJECTIVE

To review computation involving whole numbers

TECHNIQUES

Have the student complete Learning Exercise 22.

EVALUATION

Check this exercise carefully for indications of areas which still need reinforcement or review.

NOTES

LEARNING EXERCISE 21

REVIEWING DIVISION

DIRECTIONS: Find the quotient for each of the following:

a. $3\overline{)63}$ b. $5\overline{)420}$ c. $9\overline{)1044}$ d. $18\overline{)612}$ e. $89\overline{)5162}$

f. $90\overline{)34110}$ g. $132\overline{)3696}$ h. $29\overline{)2107}$ i. $307\overline{)303009}$ j. $52\overline{)1432}$

k. $94\overline{)3008}$ l. $28\overline{)392}$ m. $36\overline{)1476}$ n. $65\overline{)5265}$ o. $145\overline{)1952}$

p. $3460 \div 10$ q. $4200 \div 10$ r. $8000 \div 100$

s. $72000 \div 10000$ t. $8200 \div 10$

LEARNING EXERCISE 22

REVIEWING WHOLE NUMBERS

DIRECTIONS: Find the value for each of the following:

a. $\begin{array}{r} 76 \\ 38 \\ 54 \\ +\ 97 \\ \hline \end{array}$ b. $\begin{array}{r} 37 \\ 820 \\ +\ 142 \\ \hline \end{array}$ c. $\begin{array}{r} 267 \\ 391 \\ +\ 444 \\ \hline \end{array}$ d. $\begin{array}{r} 368 \\ 958 \\ 409 \\ +\ 563 \\ \hline \end{array}$

e. $3258 + 534 + 271 + 14 + 50478$ f. $\begin{array}{r} 58 \\ -\ 36 \\ \hline \end{array}$ g. $\begin{array}{r} 329 \\ -\ 148 \\ \hline \end{array}$

h. $\begin{array}{r} 500 \\ -\ 194 \\ \hline \end{array}$ i. $\begin{array}{r} 2694 \\ -\ 502 \\ \hline \end{array}$ j. $\begin{array}{r} 6472 \\ -\ 1368 \\ \hline \end{array}$ k. $\begin{array}{r} 41 \\ \times\ 3 \\ \hline \end{array}$ l. $\begin{array}{r} 38 \\ \times\ 45 \\ \hline \end{array}$

m. $\begin{array}{r} 7008 \\ \times\ 8 \\ \hline \end{array}$ n. $\begin{array}{r} 158 \\ \times\ 63 \\ \hline \end{array}$ o. $\begin{array}{r} 4005 \\ \times\ 708 \\ \hline \end{array}$ p. $3\overline{)765}$ q. $25\overline{)625}$

r. $7\overline{)246}$ s. $12\overline{)410}$ t. $15\overline{)61429}$

LEARNING ACTIVITY 23: READING LARGE NUMBERS UP TO 9 DIGITS AND 12 DIGITS

Reference: Curriculum Resource Handbook, p. 61

OBJECTIVES

- To develop a method for reading large numbers up to 9 digits
- To enable students to read large numbers up to 12 digits

TECHNIQUE

Prepare Learning Exercise 23 as a transparency for the overhead projector. Reveal the numbers in Group A, one at a time, as follows:

Reveal	Ask	Response	Notes
8	How is this read?	Eight.	Write "eight" on transparency next to the 8.
462	How is this read?	Four hundred sixty-two.	Write response after 462.
509	How is this read?	Five hundred nine.	Write response after 509.
462509	What can we use to help us read this number?	A comma.	
	Where should it be placed?	Between the 2 and 5.	A reminder may be necessary regarding where to place the comma(s).
	How is it read?	Four hundred sixty-two thousand, five hundred nine.	Write response after 462,509.
8462509	How many commas will we use for this number?	Two.	
	Where do they go?	Between the 8 and 4 and the 2 and 5.	
	How is the number read?	Eight million, four hundred sixty-two thousand, five hundred nine.	Write response after 8,462,509.

After all the steps have been revealed and read separately, ask: "After we placed the commas, what was the greatest number of digits we had to read at a time?" *(Three)* "Keeping this in mind, how could you explain how you should attempt to read large numbers?" Direct the suggestions to the conclusion that once you divide the digits into groups using commas, you then read one group at a time, followed by its group name. For example, to read 8,462,509 using this method we would:

(1) Divide the digits into groups. 8,462,509

(2) Read the first group (8), *"eight."* Follow it with its group name *"million."*

(3) Read the next group (462), *"four hundred sixty-two."* Follow it with its group name, *"thousand."*

(4) Read the next group (509), *"five hundred nine."* Since this is the last group to the right,we don't use a group name.

Therefore: 8,462,509 is read: *"eight million, four hundred sixty-two thousand, five hundred nine."*

Then proceed to read the numbers in Group B in the same manner.

Use the overhead projector to present a series of multiple place numbers up to 12 digits. Ask volunteers to place commas in the correct spaces and to read the numbers. This should help the teacher identify students who are able to read these numbers with little, if any, difficulty. The class can then be divided into smaller groups, made up of one student who has mastered this skill and one or two students who need assistance. Give each student a copy of Learning Exercise 23. After each student has had time to place commas, have the poorer students attempt to read the numbers to the one in their group who is the "tutor." The teacher should circulate among the groups,giving help as needed.

EVALUATION

Test students' understanding of this method by asking them to read aloud the numbers in Group C. Those who can successfully read at least 80% of these should then be asked to write a similar list in words, using Learning Exercise 1, if necessary, for assistance in spelling.

Those who are unable to do 80% should be given additional, individual assistance before attempting to express large numbers in writing.

Those who are successful with the items in Group C should be asked to do the items in Group D. The extent of student achievement in the skill can be measured by comparing their skills before and after the exercise. Additional learning exercises may be necessary for some students. Not all students may achieve this skill as readily as others. Signs of frustration should be observed and the exercise postponed until a later time or, in extreme cases, not attempted at all.

LEARNING EXERCISE 23

READING LARGE NUMBERS UP TO 9 DIGITS AND 12 DIGITS

DIRECTIONS: Write the numbers in Group A and Group B in words.

Group A:	Group B:
8	25
462	007
509	640
462509	7640
8462509	25007640

DIRECTIONS: Place commas in each of these numbers and then read them orally.

Group C:	Group D:
38020	4608
4480601	38452
761000	197643
924000775	908724
40070010	444444
430500008	3640291
7465	547602
113030	9435692
72900404	279486310
5298743	123456789
	75026391
	400300002001

LEARNING ACTIVITY 24: WRITING NUMERICAL EXPRESSIONS

Reference: Curriculum Resource Handbook, p. 61

OBJECTIVE

To translate word descriptions of numbers to their numerical expressions through the billion group

TECHNIQUE

Ask students the following sequence of questions.

1. What is an aid in reading a number such as 5278026159? *(commas)*

2. What do they do? What do they indicate? *(They show where each group ends.)*

3. What group names would we have to use in reading 5, 278, 026, 159? *(Billions, millions, and thousands.)*

4. When we see a number written in words, we won't have the commas to help us. What can we use as clues? *(Look for the group names.)*

5. Take the description thirty-one thousand, two hundred sixty-two. Are there any group names in the description? *(Yes, hundred and thousand.)*

6. What would be the most places you could use? *(6)*

7. Write six blanks on the chalkboard with the comma in the proper place (_____ _____ _____, _____ _____ _____). Underline the word *thousand* in the description.

8. How many thousands are there in this number? *(Thirty-one)*

9. How many digits does it take to write thirty-one? *(2)*

10. How many places are there in the thousands group? *(3)*

11. In which of these 3 spaces should 31 be written? *(The 2 farthest to the right.)*

12. Continue completing the number. Point out again the fact that the group farthest to the right has no group name. Therefore, two hundred sixty-two must be placed in the three blanks to the right of the thousands group. Since this number takes three digits, no decisions need to be made as to which blanks to use.

Repeat this method with other word descriptions. This time nine blanks could be needed. Translate from words to numbers, group by group.

Once the word descriptions containing consecutive groups are mastered, have students attempt ones which skip a group. For example, to translate five million, eighty-six into numbers:

1. Underline group names. *(In this case, only million.)*

2. Draw the possible number of blanks.
   (___ ___ ___, ___ ___ ___, ___ ___ ___)

3. Start with the first group and translate.
   (___ ___ 5, ___ ___ ___, ___ ___ ___)

4. Here we have no thousands, so eighty-six will have to be put into the last group. (___ ___ 5, ___ ___ ___, 0 8 6)

5. Ask for suggestions as to the next step. *(Complete empty spaces in thousands group with zeros.)*

6. The final translation is *5,000,086*.

Repeat with other similar descriptions.

EVALUATION

Distribute Learning Exercise 24. Check the accuracy of the students' responses.

NOTES

LEARNING EXERCISE 24

WRITING NUMERICAL EXPRESSIONS

DIRECTIONS: Write each example, a-j, using numerals. Underline group names. Draw as many blanks as you might need for the largest group.

a. three thousand, nineteen

3 , ___ ___ 9

b. six hundred twenty thousand, four hundred one

___ 2 ___ , ___ 0 ___

c. two million eighty thousand, seven

___ , ___ ___ ___ , ___ ___ ___

d. ninety-eight thousand, seven

e. sixty-four million, one hundred thousand, four

f. seven thousand, five hundred six

g. four hundred eight million, seventy

h. twenty-nine million, six hundred thousand, four hundred eighty

i. one million, nine hundred, twenty-one

j. five hundred sixty-three thousand, five

LEARNING ACTIVITY 25: ROUNDING NUMBERS

Reference: Curriculum Resource Handbook, p. 61

OBJECTIVE

To develop the ability to round numbers to the nearest tens, hundreds, and thousands

TECHNIQUE

Write these three sentences on the chalkboard:

The attendance at today's game was 384.
The attendance at today's game was 380.
The attendance at today's game was 400.

Ask: "Is it possible for all three sentences to be true?" Students will probably reply that only one can be true.

Write these sentences on the chalkboard:

Today there are 18 students in the class. (Use the actual number in your class.)

Today there are 20 students in the class.

Ask: "Can both of these be true?" Again, students will probably reply, "No, only the first sentence is true."

Insert the word *about* or *almost* in the second sentence before the 20.
Ask: "Are both sentences true now?" Students should agree that they are.
Ask: "How is it possible for both to be true?"

Students should realize that in the first sentence the exact number is used, while in the second sentence the number only approximates the total. Ask students which sentence in the first group they think is the most accurate.

Introduce the term "rounding" and explain its meaning. For example, the 380 in the first group of sentences and the 20 in the second group are rounded to the nearest ten. The 400 rounds 384 to the nearest hundred.

Develop the thinking process used in rounding numbers. Begin by using only 2-digit numbers which are to be rounded to the nearest ten.

Example: Round 43 to the nearest ten.

Ask: "How many tens are there in 43?" *(4)*
"What can we use to represent 4 tens?" *(4 x 10 or 40)*
"If you had one more ten how much would you have?" *(5 tens or 50)*
"Is 43 closer to 40 or 50?" *(40)*
"Therefore, 43 rounded to the nearest ten is 40."

Repeat this process with other numbers until students are aware that if the digit in the ones place is less than 5, the lower number (or the number of tens you have) is the number selected as the rounded number. Likewise, if the ones digit is equal to or greater than 5, select the higher number (or the next number of tens). These can be compiled in a chart similar to the one suggested below.

Original Number	Round to Nearest	Have	Next	Nearest
43	ten	40	50	40
68	ten	60	70	70
25	ten	25	30	30
96	ten	90	100	100

Continue next with rounding three-digit numbers to the nearest hundred. Follow the same basic pattern of thinking.

Example #1: Round 472 to the hundred.

Have: 4 hundreds or 400
Next: 5 hundreds or 500
Nearest: 500
472 to the nearest hundred is 500.

Example #2: Round 650 to the nearest hundred.

Have: 6 hundreds or 600
Next: 7 hundreds or 700
Nearest: Neither, but by the rule we round up. 650 to the nearest hundred is 700.

Students should realize that only the *one* digit to the right of the place being rounded is needed to decide whether to round up or down. The rule is if this digit is less then 5, keep what you have. If it is 5 or greater than 5, round up to next.

Next, round three-digit numbers to the nearest ten.

Example: Round 472 to the nearest ten.

Have: 47 tens or 47 x 10 or 470. To find this, it is helpful to underline the digits from left to right through the place being rounded. In this case: 472.
Next: 47 tens + 1 ten = 48 tens or $4\overline{80}$.

Nearest: 470, since the digit 2 is in the place to the right of ten's place, and 2 is less than 5. 472 rounded to the nearest ten is 470.

Continue the exercise with larger numbers, but do not do the thousands.

When the students understand the rounding process, have them complete Learning Exercise 25.

EVALUATION

If the student makes more than two errors on Learning Exercise 25, have him complete Learning Exercise 25a for further practice. Then have him try Learning Exercise 25b, which does not require showing the step involved, only the rounded number.

NOTES

LEARNING EXERCISE 25

ROUNDING NUMBERS

DIRECTIONS: Complete the following chart:

Original number	Round to the nearest	Have	Next	Nearest (rounded number)
463	Ten			
463	Hundred			
2347	Ten			
2347	Hundred			
794	Hundred			
8291	Ten			
8291	Hundred			
14	Ten			
57608	Ten			
57608	Hundred			
3333	Ten			
999	Ten			
999	Hundred			
456	Ten			
456	Hundred			

LEARNING EXERCISE 25a

ROUNDING NUMBERS

DIRECTIONS: Complete the following chart:

Number	Round to the nearest	Have	Next	Nearest (rounded number)
248	Ten			
248	Hundred			
4652	Ten			
4652	Hundred			
642	Hundred			
897	Ten			
5836	Hundred			
9997	Ten			
9997	Hundred			
3872	Hundred			
450	Hundred			
5244	Ten			
9238	Hundred			
450	Ten			
2899	Ten			
9525	Hundred			

LEARNING EXERCISE 25b

ROUNDING NUMBERS

DIRECTIONS: Round the following numbers as indicated:

a. Round 58 to the nearest ten.

b. Round 473 to the nearest ten.

c. Round 642 to the nearest hundred.

d. Round 390 to the nearest hundred.

e. Round 499 to the nearet ten.

f. Round 2735 to the nearest ten.

g. Round 8476 to the nearest ten.

h. Round 91,673 to the nearest hundred.

i. Round 18,271 to the nearest hundred.

j. Round 32 to the nearest ten.

LEARNING ACTIVITY 26: APPROXIMATING

Reference: Curriculum Resource Handbook, p. 61.

OBJECTIVE

To develop the ability to approximate

TECHNIQUE

Once students develop the ability to round numbers, they should have little difficulty approximating amounts to be added. If the student is weak in addition, it may be necessary to work through those Learning Activities and Learning Exercises dealing with number facts before attempting approximating.

Explain or demonstrate to students that there are really two steps in approximating totals. The first is a rounding step to get the number to the nearest ten with two place numbers, and hundreds with three place numbers; the second is a step in computation. A simple presentation such as the following might be used to illustrate the process.

> You are shopping at the supermarket with a limited amount of money and do not want to overspend. So you try to keep track of your total in your head. In order to do this you need to approximate. Suppose you bought 2 lbs. of hamburg for $1.48 and four packages of hamburger rolls for $1.04; about how much have you spent? $1.48 rounded to the nearest ten is $1.50, and $1.04 rounded to the nearest ten is $1.00. Adding the two rounded figures gives a total of $2.50, or the approximate total you have spent.

EVALUATION

Provide students with increasingly difficult word problems requiring different computational skills.

- You make a purchase costing $1.98. Approximate how much change you should receive from a $5.00 bill. (subtraction)

- Floor tiles cost 11¢ each. Approximate how much 40 tiles would cost. (multiplication)

- Two tires cost $49.00. Approximate the cost of one tire. (division)

LEARNING ACTIVITY 27: BUDGETING

Reference: Curriculum Resource Handbook p. 53

OBJECTIVE

To have the students keep a record of their own income and spending for a given period of time (2 weeks, a month), as a means of providing a personal basis for discussing budgeting

TECHNIQUE

Learning Exercise 27 or a reasonable facsimile can be provided for the activity described in the Curriculum for Computation Skills, on budgeting, p. 53.

The individual records should be checked after 2 or 3 days by the teacher to be sure the students are entering the information that will enable them to participate on a personal basis in the budgeting discussion. If a student has difficulty keeping his record, ask a better student to help him.

Have the records kept at the Center, and allow a few minutes each day for students to do their recording.

Keep extra copies of Learning Exercise 27 on hand for students who may make mistakes or need a second sheet to complete the assignment.

EVALUATION

Ask the students to look at their lists of items and decide which types of expenses occurred most often. Survey the class to determine the most common expense. For example: "How many found their largest expense was food? Clothing? Recreation? Housing?"

Using their own records, they should see how their spending could be improved and a more adequate budget established.

Following the budget discussion, the students could be asked to again keep a similar record and then compare the first record with the second to determine if they have benefited from the discussion.

NOTES

LEARNING EXERCISE 27

B U D G E T I N G

Date	Item	In	Out

LEARNING ACTIVITY 28: BANKING TERMS

Reference: Curriculum Resource Handbook, pp. 53-55

OBJECTIVE

To review terms involved with banking

TECHNIQUE

Place Learning Exercise 28 on the overhead. Provide a ditto copy for each student. Read the terms and expressions aloud or have a capable student read them. Then ask students for possible matches. Use this opportunity to explain their meanings more fully. For example, when the term "cosign" is matched with choice "h," the advantages and disadvantages of cosigning can be discussed. Likewise, when "cancelled check" is matched with "i," questions such as, "Why should cancelled checks be saved?" and "How long should they be saved?" should be posed.

As the matches are being made on the overhead, have students record the correct choices on their copy.

EVALUATION

Give the same exercise for students to complete, individually, a few days after the class activity, and check for correct answers.

NOTES

LEARNING EXERCISE 28

BANKING TERMS

DIRECTIONS: Column A is a list of common banking terms. Column B is a list of definitions for these terms. Look at the first word in Column A; it is "interest." Which definition in Column B best explains the meaning of "interest"? "B, money paid for money used" is the correct choice. Write "B" in the blank space in front of the word "interest." Match the remaining definitions in Column B.

Column A	Column B
_____ Interest	A. money borrowed
_____ Deposit	B. money paid for money used
_____ Check	C. money taken out of an account
_____ Teller	D. a form that can be used in place of money
_____ Endorse	E. a person who works in a bank
_____ Cancelled check	F. the present amount in an account
_____ Withdrawal	G. money put into an account
_____ Balance	H. to sign with someone
_____ Cosign	I. a check that has been cashed
_____ Loan	J. to sign one's name

LEARNING ACTIVITY 29: USING A CHECKING ACCOUNT

Reference: Curriculum Resource Handbook, p. 54

OBJECTIVE

To have students complete the necessary forms involved in maintaining a checking account

TECHNIQUE

Distribute Learning Exercise 29 and review with the students the proper method of writing a check.

Using the forms provided in Learning Exercise 29c, 29d, and 29e, have the students complete Learning Exercise 29a as the initial activity on checking accounts. After students complete the transactions in Learning Exercise 29a, another series of transactions should be provided to reinforce the mechanics of handling a checking account. For this, use Exercise 29b.

The first set of forms which accompany the initial series of transactions should be carefully checked with the student in order to point out any mechanical or arithmetical errors. (Note: Although computational mistakes can be pointed out at this time, they are not the major emphasis here. The focus should be on the correct completion of the forms using the information provided.)

Distribute Learning Exercise 29f and review with the students the procedure for reconciling their checkbook with their bank statement.

Exercise 29h should be completed with the students to show them the method of reconciling a bank statement with their checkbook. Assume that there are 2 checks outstanding: #62 for $10.63, and #65 for $26.00. Also assume a balance in the checkbook of $158.79.

EVALUATION

Students who successfully complete the first series of transactions need not do the second series. They can, however, be used as tutors for other students who are having difficulty and need individual help. Other series of transactions may be necessary for students who still have difficulty after completing Exercise 29b.

NOTES

LEARNING EXERCISE 29

WRITING A CHECK

How to write a check

Facts you should know about writing checks: Below is a typical check of The Bank. To make out a check, follow the steps shown, one by one.

1. The check number: If your checks are not already numbered, be sure to number them, as this is a great help in keeping records and balancing your checkbook. At the same time write the check number on your check stub or check record page.

2. The date: An undated check is valid, but for your protection and for your records it is important to put the correct dates on your checks. Contrary to popular opinion, a check may be dated on a Sunday or holiday, but do not write a future date on a check. Banks are not authorized to pay checks with future dates.

3. The payee: Care should be used when drawing checks to "cash" or "bearer" as such checks may be cashed by anyone. It is preferable for checks to be made out to a specific person or company (the payee).

4. The amount: If the amount of the check as shown in figures differs from the amount as spelled out, the spelled-out amount is considered correct. To guard against alterations, put the figure right next to the dollar sign and start the written amount as close as possible to the left margin. Fill the unused space with a line.

5. The signature: The signature you use on your checks should correspond exactly with your signature on file at The Bank. **Never sign a blank check!**

JOHN J. DOE

15

April 8 19 71 29-7 / 213

PAY TO THE ORDER OF Telephone Company $16 75/100

Sixteen 75/100 DOLLARS

John J. Doe

⑈0213⑈0007⑆ 12 34 567 8⑈

LEARNING EXERCISE 29a

USING A CHECKING ACCOUNT

DIRECTIONS: Complete the correct checking account forms using this information:

1. Assume a balance of $85.00 in your account.
2. On September 1, you deposit $50.00 in cash.
3. On September 4, you write a check to the New York Telephone Company for $10.40.
4. The check charge for each check used is $.15.
5. On September 10, you make out a check to "cash" for $20.00.
6. On September 12, you deposit a $25.00 check (transit number 26-9).
7. On September 15, you write a check to make a payment of $10.00 on your charge account at Sears, Roebuck and Company.
8. Is the balance in your account at this time adequate to cover a check you wish to write for the sum of $98.00?

LEARNING EXERCISE 29b

USING A CHECKING ACCOUNT

DIRECTIONS: Complete the correct checking account forms using this information.

1. On September 20, you open a checking account by depositing a $75.00 check.
2. On September 23, you write a check to pay a doctor bill of $15.00. Make the check payable to Dr. Robert Smith. The charge for each check used is $.15.
3. On September 30, you write a check to pay a bill of $5.00 at Baker's Drug Store for medicine.
4. On October 1, you deposit $80.00 in cash.
5. On October 8, you need $20.00 in cash. Write a check to obtain it.
6. Is the balance in your account adequate to cover a check for $115.00?

LEARNING EXERCISE 29c

RECORD FORMS

Check No. _____ $ _____		
Date _____ 19__		
To _____		
For _____		
	Dollars	Cents
Balance For'd		
Add: Deposits		
TOTAL		
Deduct: This ck.		
Misc. Ded.		
TOTAL		
Deduct: ck. chg.		
BALANCE		

Check No. _____ $ _____		
Date _____ 19__		
To _____		
For _____		
	Dollars	Cents
Balance For'd		
Add: Deposits		
TOTAL		
Deduct: This ck.		
Misc. Ded.		
TOTAL		
Deduct: ck. chg.		
BALANCE		

Check No. _____ $ _____		
Date _____ 19__		
To _____		
For _____		
	Dollars	Cents
Balance For'd		
Add: Deposits		
TOTAL		
Deduct: This ck.		
Misc. Ded.		
TOTAL		
Deduct: ck. chg.		
BALANCE		

Check No. _____ $ _____		
Date _____ 19__		
To _____		
For _____		
	Dollars	Cents
Balance For'd		
Add: Deposits		
TOTAL		
Deduct: This ck.		
Misc. Ded.		
TOTAL		
Deduct: ck. chg.		
BALANCE		

LEARNING EXERCISE 29d

DEPOSIT SLIPS

Checking Account
Deposit Ticket

Date _____19__

Checks and other items are received for deposit subject to the terms and conditions of this bank's collection agreement.

		Dollars	Cents
CASH			
C H E C K S			
TOTAL from other side			
TOTAL			

Use other side for additional listing

Enter total here

Be sure each item is properly endorsed

Checking Account
Deposit Ticket

Date _____19__

Checks and other items are received for deposit subject to the terms and conditions of this bank's collection agreement.

		Dollars	Cents
CASH			
C H E C K S			
TOTAL from other side			
TOTAL			

Use other side for additional listing

Enter total here

Be sure each item is properly endorsed

LEARNING EXERCISE 29e

CHECKS

____

_____ 19__

Pay to the
order of _____ $_____

_____ Dollars

_____

____

_____ 19__

Pay to the
order of _____ $_____

_____ Dollars

_____

____

_____ 19__

Pay to the
order of _____ $_____

_____ Dollars

_____

LEARNING EXERCISE 29f

RECONCILING A CHECKBOOK AND A BANK STATEMENT

To make sure your checkbook record is accurate, follow the simple procedure listed on the back of your statement:

1. Compare the amount of each cancelled check with the amount charged on the statement.

2. Deduct from your checkbook balance any service charge or other charge originated by The Bank. Your account may have been charged with some service or maintenance fees. You will have no record of these charges, covering the activity of your account for the previous month, until you see them on your bank statement. The charges will be identified by symbols that are explained on the face of the statement.

3. Arrange checks enclosed with the statement either by date or number, and check them off against your checkbook record.

4. List any checks that have been issued by you that have not yet been paid by The Bank in the "Outstanding Checks" column on the back of the statement. Some of the checks which you have issued during the month may not have been presented for payment. Therefore The Bank would have no record of them and would not have deducted the amounts from your balance.

5. Enter the final balance shown on the face of the statement.

6. Add to that final balance any deposits made since the last date of the statement.

7. Deduct the total outstanding checks as shown on the back of the statement (see number 4 on page 10).

8. Compare the new balance on your bank statement with the new balance in your checkbook. They should be the same. If they're not the same —

Here are some helpful hints

Compare your record of deposits made during the month with the deposits shown on your bank statement. If there is an error here, it should be corrected so that your checkbook and your statement balances agree.

What if there is **still** a difference? Then see whether there are **any** entries on your statement that do not appear in your checkbook — or vice versa. Did you write a check and forget to enter it or make a deposit which you failed to record?

Have you carried forward any outstanding checks from your previous statement that are **still** outstanding?

Have you compared the amounts on your checks with the amounts listed on the stubs?

Have you carried forward the correct balance from page to page?

Be sure there are no numbers transposed or mistakes made in addition or subtraction.

If, after this, you find that you and the bank statement do not agree, we suggest that you call the matter to the attention of The Bank office where you keep your checking account. Someone there will help you solve the problem.

LEARNING EXERCISE 29g

BANK STATEMENT

PLEASE NOTIFY US OF ANY CHANGE IN YOUR ADDRESS

John Doe
12 Apple Lane
Littleville, N.Y.

ACCOUNT CODE
012-34-5678

STATEMENT DATE
January 24, 1972

CHECKS	CHECKS	DEPOSITS	DATE	BALANCE
	BALANCE FORWARD →			$404.16
$75.00 10s			12/3/71	$329.06
$29.50 10s			12/5/71	$299.46
$44.65 10s	$58.25 10s		12/10/71	$196.36
		$200.00	12/15/71	$298.36
$298.00 10s			12/20/71	$ 98.26
$ 15.00 10s			12/30/71	$ 83.16
		$275.00	1/10/72	$358.16
$ 62.34 10s			1/15/72	$295.72
$100.00 10s			1/18/72	$195.62
$ 36.73 10s	1.00 s		1/22/72	$157.79

VOID

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

PLEASE EXAMINE THIS STATEMENT AND THE ENCLOSED ITEMS CAREFULLY AND PROMPTLY. ANY DISCREPANCIES MUST BE REPORTED WITHIN TEN DAYS.

Commercial Bank

C - CERTIFIED CHECK
E - ERROR CORRECTED
– - OVERDRAFT
L - LIST
R - RETURNED ITEM
S - SERVICE CHARGE
M - DEBIT OR CREDIT MEMO

To reconcile your account, please use form on back of this statement.

LEARNING EXERCISE 29h

BANK STATEMENT

TO RECONCILE YOUR ACCOUNT

A Sort checks numerically or by date issued.

B Check off on the stubs of your checkbook each of the checks paid by the bank and list below the numbers and amounts of those still outstanding.

C Verify deposits entered in checkbook with those entered on bank statement.

WRITE here the balance shown on statement .....$_____

ADD deposits not shown on statement.....$_____

TOTAL $_____

BRING total of outstanding checks from listing below to this line and subtract.....$_____

THIS BALANCE should agree with your checkbook balance after deducting from checkbook any service charge shown on statement.....$_____

See National Commercial for **every** financial service.

In addition to your Checking Account, other services are: Savings Accounts
Automatic Savings Plan
Certificates of Deposit
Christmas and Vacation Clubs
Banking by Mail
Personal Loans
Education Loans
Appliance Loans
Automobile Loans
Bancardchek
Check-Credit
Property Improvement and FHA Modernization Loans
Collateral Loans
Commercial Loans
Mortgage Loans
VA, FHA, Conventional
Farm Loans
Safe Deposit Boxes
Bank Money Orders
Night Depository
Foreign Drafts
Letters of Credit
Computer Payroll Service
Equipment Leasing
Travel Headquarters

ALL PERSONAL AND CORPORATE TRUST SERVICES

CHECKS OUTSTANDING		
NUMBER	AMOUNT	
TOTAL		

LEARNING ACTIVITY 30: BUYING ON TIME

Reference: Curriculum Resource Handbook, p. 56

OBJECTIVE

To review terms involved with buying on time and to compare the final cost of the same article bought by various methods of financing

TECHNIQUE

Have a copy of Learning Exercise 30 on the overhead. Cover the information on the projection. Reveal the first term, *credit.* Ask for student responses as to what this means. After students have offered all their suggestions, show the definition on the Learning Exercise. Continue in a similar manner with the other terms.

Reveal the flow chart of Learning Exercise 30a line by line. Follow through the steps with the students to show the possible means of buying the same refrigerator.

After completing this discussion, ask students "Which is the least expensive means of buying the refrigerator?" and "How important is good credit?"

EVALUATION

The responses to the last two questions should indicate if the students understand the concepts that it is less expensive to buy with cash and good credit is an asset to the buyer.

NOTES

LEARNING EXERCISE 30

BUYING ON TIME

GLOSSARY

CREDIT - Financial trustworthiness; one's ability and willingness to pay

CREDIT CHARGE - An amount added to the selling price when goods are bought on the installment plan

CREDIT RATING - An estimate of one's financial trustworthiness and ability and willingness to pay

DECEPTIVE - Tending to be false or tending to cheat

DOWNPAYMENT - A portion of the selling price which the buyer pays at the time of purchase

FINANCE COMPANY - A specialized firm whose business is lending money to make money

INSTALLMENT PLAN - A plan by which one pays for a purchase by a series of regular payments determined at the time of purchase

TOTAL COST - Selling price of an article plus the interest charge

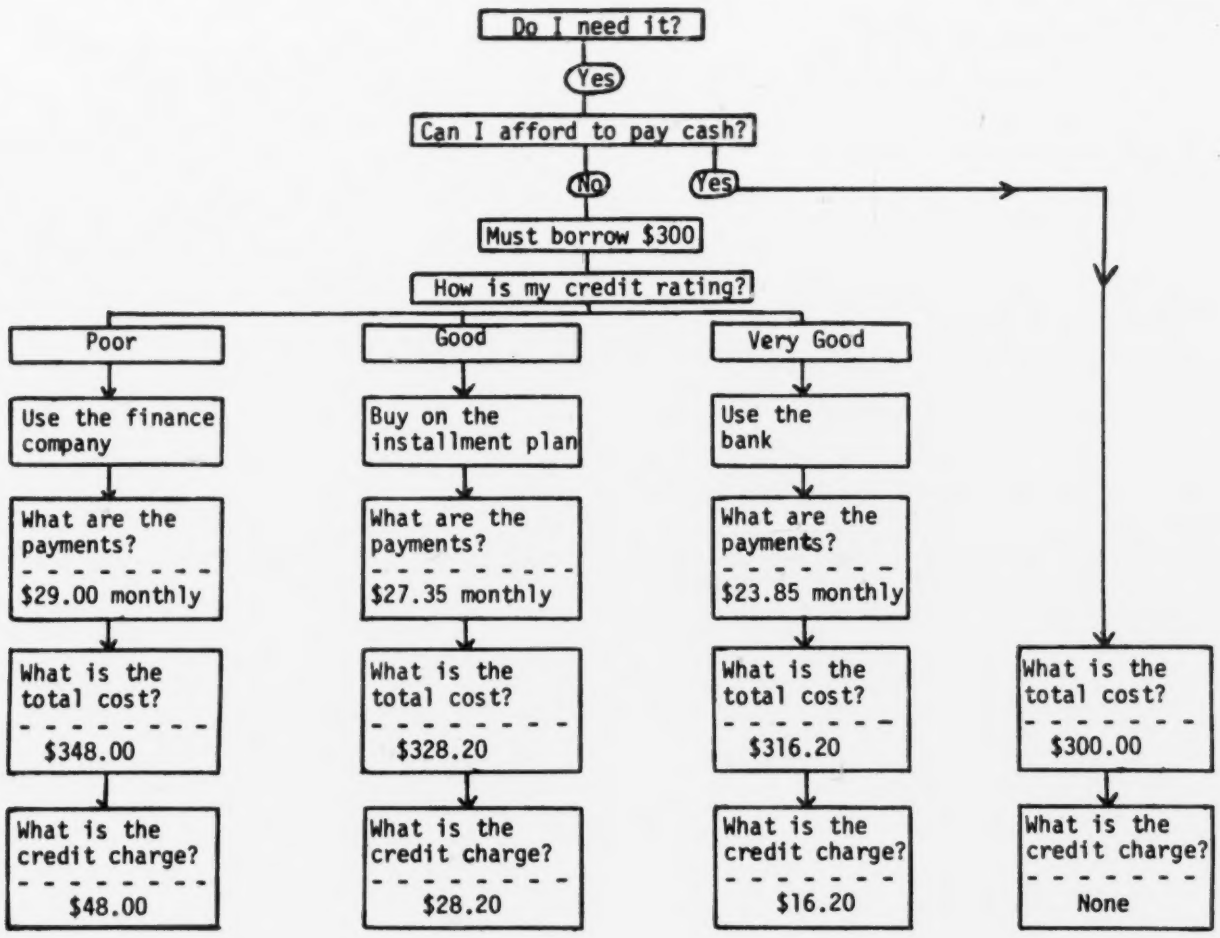
DEFAULT - A failure to pay financial debts

REPOSSESSION - The act of resuming possession of property when the purchaser fails to keep up payments on it

LEARNING EXERCISE 30a

BUYING A REFRIGERATOR ON TIME

If I wanted to buy a $300 refrigerator, I should consider:



LEARNING ACTIVITY 31: ADVERTISING AND SALES

Reference: Curriculum Resource Handbook, p. 56

OBJECTIVE

To acquaint students with devices used by business to attract customers through newspaper ads

TECHNIQUE

Have Learning Exercise 31 prepared for use on the overhead projector. Ask the students if they have ever seen items like these before and, if so, where. After establishing their use in newspaper ads, develop an understanding of their meanings. Some questions which might be used in the discussion are:

Ad	Sample Questions	Understanding
dollar day	Can you buy any item for just $1.00?	Only certain articles can be bought for just $1.00.
1¢ sale	Is 1¢ the price of every article you buy?	You have to buy one article at the regular price in order to get a second one for only 1¢.
July Clearance - entire stock must be sold.	Why must the entire stock be sold?	At the end of each season, stores try to get rid of as much of their seasonal inventory as possible to save in storage, etc.
Save up to 50% on many items	Does this mean you can save 50% on these items?	Look for expressions such as "up to."

EVALUATION

Ask students to look through their local newspaper and find similar ads. Have them explain what they think the device means.

NOTES

LEARNING EXERCISE 31

ADVERTISING AND SALES

DOLLAR DAY

DISCOUNTS TO 77%—PRICES AS LOW AS 94¢

TERMS ARRANGED TO SUIT YOUR BUDGET

45% less

for $20 a month

1/2 PRICE

RED TAG SALE DAYS!

Quality--Selection--Low Prices

END OF YEAR SALE

July CLEARANCE

ENTIRE STOCK MUST BE SOLD

1¢ SALE!

LEARNING ACTIVITY 32: LANDLORD-TENANT RELATIONSHIP

Reference: Curriculum Resource Handbook, p. 57

OBJECTIVES

- To establish the responsibilities of both parties in a landlord-tenant relationship
- To define terms involved in renting a home or apartment
- To familiarize students with agencies which assist persons having difficulties with landlords or tenants

TECHNIQUE

Project Learning Exercise 32 on the overhead. Ask students to describe what they think is happening in the top picture. Direct the discussion to include the definition of a lease and the points to be considered when signing one. A LEASE is defined as a contract by which one grants use of property for a period of time for a specified rent.

Some important points one should understand when signing a lease are:

- The length of the lease
- The amount of rent
- The date on which rent is to be paid
- The use and care of the property
- The services to be provided by the landlord
- The terms under which the apartment may be sublet

Additional terms to be included are:

LANDLORD - the owner of property which is leased or rented to another

PREMISE - a building or part of a building, usually including its grounds

SUBLET - to lease or rent all or part of rented property to another person by the original tenant

TENANT - one who leases or rents from a landlord

Using the middle and bottom illustrations on Learning Exercise 32, discuss the responsibilities of the landlord and the tenant. A list similar to the following could be compiled on the chalkboard as the discussion proceeds:

The landlord should provide:

- A suitable place in which to live
- Heat, and hot and cold running water *if* listed in lease
- Repair and upkeep of premises

A tenant's responsibility should be:

- To pay the rent on time
- To take care of the property
- To be considerate of the other tenants

Be sure the students understand that evey lease is not exactly the same. Have students relate responsibilities they know their families have to fulfill.

Next, discuss the course one can take if either the landlord or the tenant fails to meet his responsibilities. Acquaint them with local agencies which assist in such difficulties, such as: City Housing Authority, Rent Control Office, Legal Aid Society, and Department of Buildings. Some of the students may be willing to relate problems which they have encountered in renting. The class should be encouraged to suggest various solutions to these problems.

EVALUATION

Ask students to react to hypothetical situations which may arise in a landlord-tenant relationship. Several suggested situations, and questions which may stimulate discussion are:

"The plaster on the living room ceiling is cracking due to the water soaking in after the last rainstorm. Whose responsibility is it to fix it?"

"The people living in the apartment above you constantly keep their t.v. set on so loud it interferes with your activities. You have politely asked them to turn it down, but have received no cooperation. What should your next step be?"

NOTES

LEARNING EXERCISE 32

WHAT IS A LEASE?

LEARNING ACTIVITY 33: BOWLING

Reference: Curriculum Resource Handbook, p. 58

OBJECTIVE

To compute bowling scores

TECHNIQUE

Provide each student with a copy of Learning Exercises 33 and 33a. Also, have a copy of the scoresheet (Learning Exercise 33a) on the overhead projector. Figure the scores of the first two players with the students. This will involve explaining the scoring value of a spare and a strike.

Use the overhead copy as the students work on their ditto copies. Then have the students try to compute the last two players' scores on their own, giving individual help as needed.

EVALUATION

The success and accuracy of the students in completing the last two scores can provide the evaluation of their understanding of how to compute bowling scores.

Students could also be taken to a bowling alley to participate in the sport, thus providing an actual experience in keeping score for their own game.

Answer key for Learning Exercise #9.

Player	1	2	3	4	5	6	7	8	9	10	TOTAL
Jim	8 /	5 4	X	9 /	6 2	X	7 2	X	X	9 /	X
	15	24	44	60	68	87	96	125	145	165	165
Carol	1 5	6 2	4 3	9 -	X	7 1	- 6	X	8 /	7 1	
	6	14	21	30	48	56	62	82	99	107	107
Bob	6 3	7 2	9 /	X	X	X	9 /	6 2	7 2	8 /	7
	9	18	38	68	97	117	133	141	150	167	167
Sue	X	8 1	8 /	8 /	9 -	6 2	X	X	7 2	9 /	6
	19	28	46	65	74	82	109	128	137	153	153

LEARNING EXERCISE 33

BOWLING SCORES

DIRECTIONS: Last Saturday night Jim, Carol, Bob, and Sue went bowling. Use the following information to record their scores on Learning Exercise 33a.

FRAMES

	1	2	3	4	5	6	7	8	9	10	EXTRA
Jim	8, 2	5, 4	10	9, 1	6, 2	10	7, 2	10	10	9, 1	10
Carol	1, 5	6, 2	4, 3	9, 0	10	7, 1	0, 6	10	8, 2	7, 1	
Bob	6, 3	7, 2	9, 1	10	10	10	9, 1	6, 2	7, 2	8, 2	7
Sue	10	8, 1	8, 2	8, 2	9, 0	6, 2	10	10	7, 2	9, 1	6

LEARNING EXERCISE 33a

BOWLING SCORES

PLAYER	1	2	3	4	5	6	7	8	9	10	

LEARNING ACTIVITY 34: THE STOCK MARKET

Reference: Curriculum Resource Handbook, p. 55

OBJECTIVES

- To realize that the stock market offers opportunities for investment to individuals who have sufficient capital
- To realize that stocks and bonds can be risky investments if one is not knowledgeable or not properly advised concerning this means of investment
- To read the financial page of a newspaper well enough to be able to follow the daily value of a chosen stock
- To compute the daily values of a chosen stock and to make decisions whether or not it is remaining a good investment

TECHNIQUE

This topic should be introduced only to the more capable students who show an interest in learning about higher finances. Explanations should be limited to simply outlining the functions of the stock market with respect to enabling business to grow through a means of investments which are expected to realize a profit. It should be emphasized to the students that individuals wishing to invest in stocks or bonds usually seek the advice of a stockbroker and that it is customary for an investor with limited capital to become a part of a mutual fund.

If it is possible for a representative from an investment firm to speak to the class, he should provide several examples of the minimum amount of capital this means of investment requires. This information can also be obtained from the financial section of *The New York Times*, *The Wall Street Journal*, or local newspapers.

After explaining the system of notation used on the financial page, the students should be encouraged to select a stock and to follow its value for several weeks using the form provided in Learning Exercise 34.

The students may need assistance in computing its value. Speculating why the stock rose or declined may be of interest to the class but the instructor should not expect that the students will possess enough facts to make accurate judgments in regard to this.

EVALUATION

The students should evidence a general awareness of how big business finances its growth and development. Perhaps they will also be able to identify items in a daily newspaper which would have a bearing on the stock market and to discuss these items using the appropriate terminology which was introduced in this lesson. In addition, the students should be able to follow the daily quotations of a given stock closely enough to determine if its value is increasing or decreasing.

LEARNING EXERCISE 34

THE STOCK MARKET

DIRECTIONS: You have $7,000 to invest in stocks. Using the financial pages in your local newspaper, select one stock you would like to buy.

Complete the following:

Name of the stock _____

Abbreviation used in the newspaper _____

Present value per share _____

Number of shares it is possible to buy _____

Multiply the value per share by the number of shares to find the present value of your stock _____

Is this stock listed on the New York Stock Exchange or the American Exchange? (Circle one)

Keep a record of the closing value of your stock for 2 weeks:

Date	Closing value as listed	Closing value in dollars and cents	Date	Closing value as listed	Closing value in dollars and cents

Find the value of your stock at the end of the 2 weeks. _____

Did you earn or lose money? _____ How much? _____